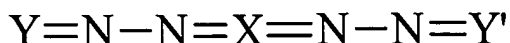


## CLAIMS

What is claimed is:

1. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a charge transport material having the formula



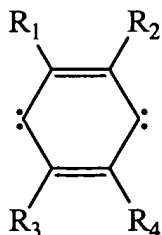
where Y and Y' comprise, each independently, a 9-fluorenylidene group and X is a conjugated linking group that allows the delocalization of pi electrons over at least Y and Y'; and

(b) a charge generating compound.

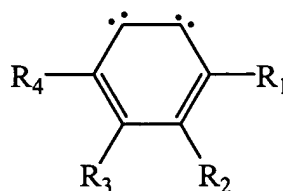
2. An organophotoreceptor according to claim 1 wherein X comprises a 1,2-ethanediylidene group, a 1,4-phenylenedimethyldiyne group, a 2,4-cyclohexadienylydene group, a 2,5-cyclohexadienylydene group, a bicyclohexylydene-2,5,2',5'-tetraene group, a bicyclohexylydene-2,4,2',4'-tetraene group, or a combination thereof.

3. An organophotoreceptor according to claim 1 wherein X comprises a  $(C_6R_1R_2R_3R_4)_n$  group, where the  $C_6$  group is a cyclohexadienylydene group with substituents  $R_1R_2R_3R_4$ ; n is an integer between 1 and 20, inclusive; and  $R_1$ ,  $R_2$ ,  $R_3$ , and  $R_4$ , each independently, are a hydrogen, a halogen, an amino group, a nitro group, a cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

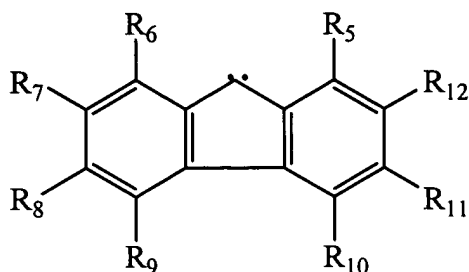
4. An organophotoreceptor according to claim 3 wherein the  $C_6R_1R_2R_3R_4$  group has one of the following formulae:



or

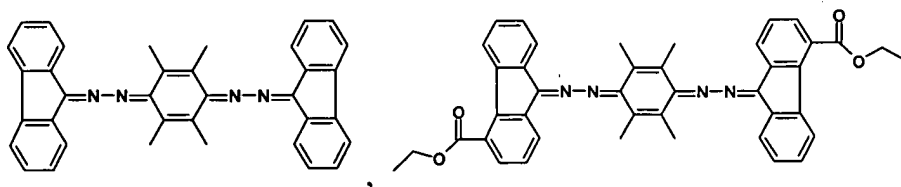
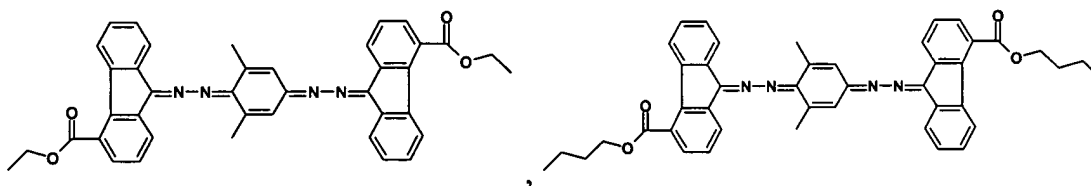
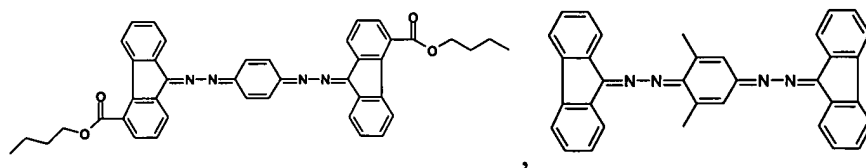
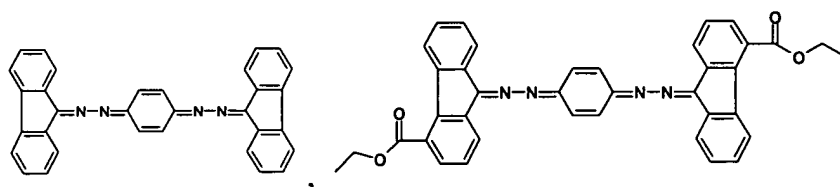


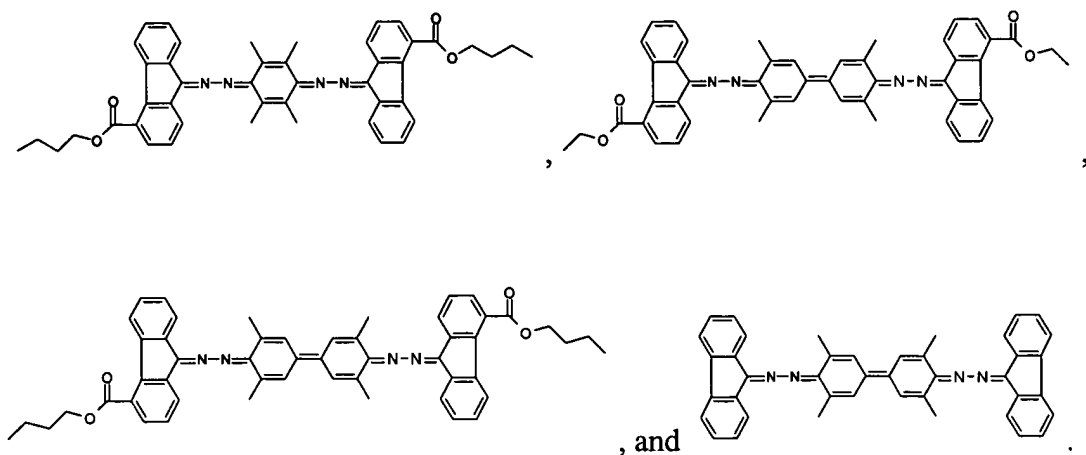
5. An organophotoreceptor according to claim 1 wherein Y and Y', each independently, have the following formula:



5 where R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, and R<sub>12</sub>, each independently, are a hydrogen, a halogen, a hydroxyl group, a thiol group, a carboxyl group, an amino group, a nitro group, a cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

10 6. An organophotoreceptor according to claim 1 wherein the charge transport material has the following formulae:





5

7. An organophotoreceptor according to claim 1 comprising:

(a) a charge transport layer comprising the charge transport material and a polymeric binder; and

10 (b) a charge generating layer comprising the charge generating compound and a polymeric binder.

8. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a second charge transport material.

15

9. An organophotoreceptor according to claim 8 wherein the second charge transport material comprises a charge transport compound.

10. An organophotoreceptor according to claim 1 wherein the organophotoreceptor is in the form of a drum or a belt.

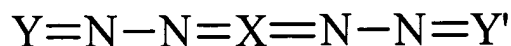
20

11. An electrophotographic imaging apparatus comprising:

(a) a light imaging component; and

25 (b) an organophotoreceptor oriented to receive light from the light imaging component, the organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(i) a charge transport material having the formula



where Y and Y' are, each independently, a 9-fluorenylidene group and X is a  
5 conjugated linking group that allows the delocalization of pi electrons over at least Y and  
Y'; and

(ii) a charge generating compound.

12. An electrophotographic imaging apparatus of claim 11 further comprising a  
10 toner dispenser.

13. An electrophotographic imaging apparatus of claim 11 wherein the  
organophotoreceptor further comprises a second charge transport material.

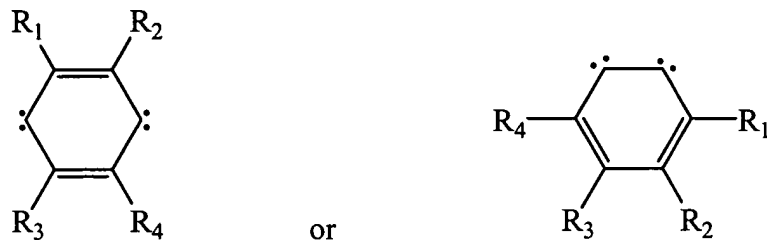
15 14. An electrophotographic imaging apparatus according to claim 13 wherein the  
second charge transport material comprises a charge transport compound.

15. An electrophotographic imaging apparatus according to claim 11 wherein X  
comprises a 1,2-ethanediylidene group, a 1,4-phenylenedimethyldiyne group, a 2,4-  
20 cyclohexadienylidene group, a 2,5-cyclohexadienylidene group, a bicyclohexylidene-  
2,5,2',5'-tetraene group, a bicyclohexylidene-2,4,2',4'-tetraene group, or a combination  
thereof.

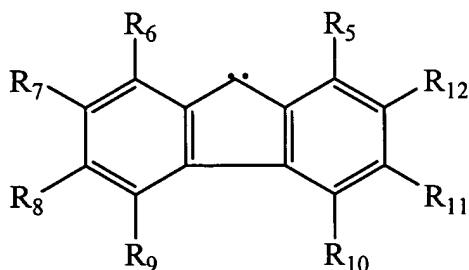
16. An electrophotographic imaging apparatus according to claim 11 wherein X  
25 comprises a  $(C_6R_1R_2R_3R_4)_n$  group, where the  $C_6$  group is a cyclohexadienylidene group  
with substituents  $R_1R_2R_3R_4$ ; n is an integer between 1 and 20, inclusive; and  $R_1$ ,  $R_2$ ,  $R_3$ ,  
and  $R_4$ , each independently, are a hydrogen, a halogen, an amino group, a nitro group, a  
cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group,  
or part of a ring group.

30

17. An electrophotographic imaging apparatus according to claim 16 wherein the  $C_6R_1R_2R_3R_4$  group has one of the following formulae:

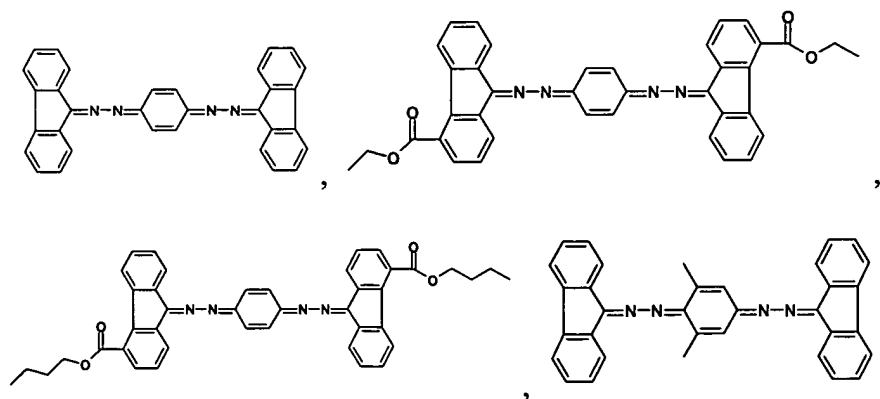


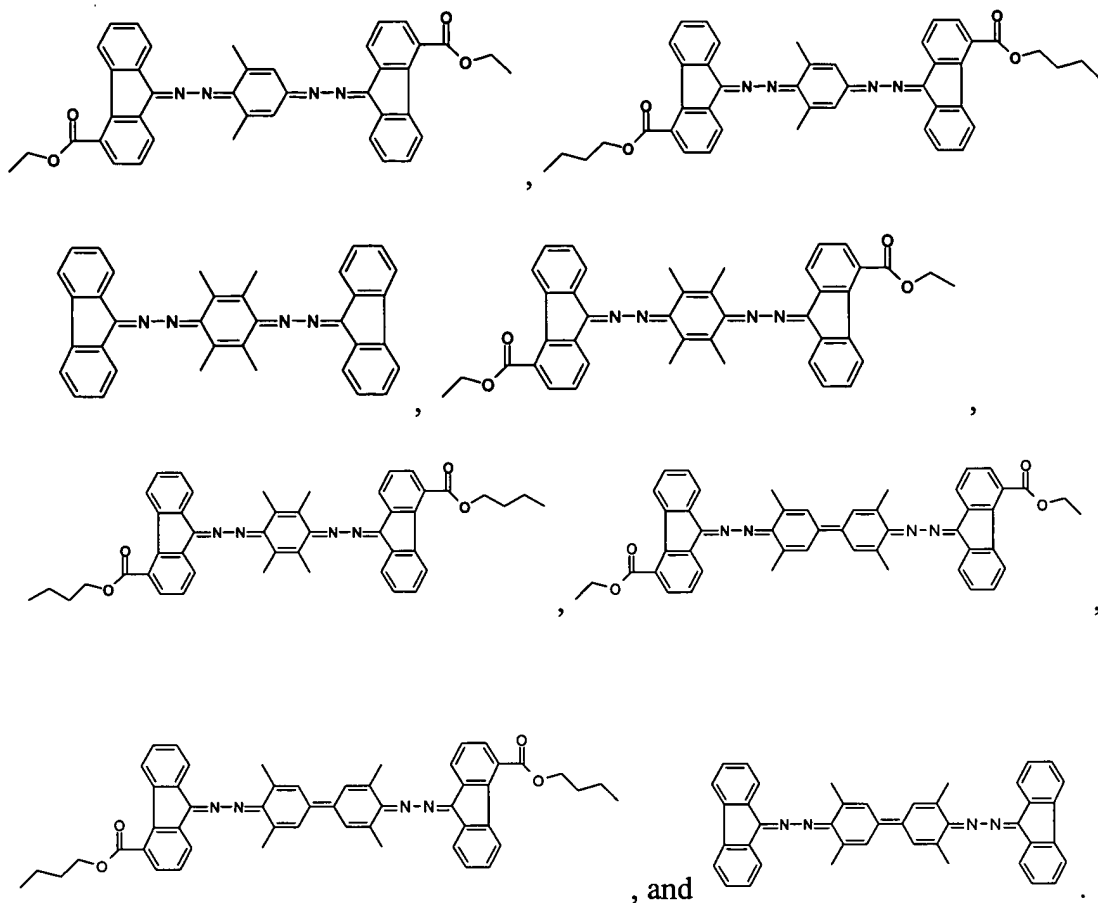
18. An electrophotographic imaging apparatus according to claim 11 wherein Y and Y', each independently, have the following formula:



where  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$ ,  $R_{11}$ , and  $R_{12}$ , each independently, are a hydrogen, a halogen, a hydroxyl group, a thiol group, a carboxyl group, an amino group, a nitro group, a cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

19. An electrophotographic imaging apparatus of claim 11 wherein the charge transport material has the following formulae:

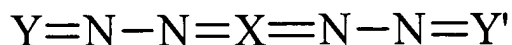




20. An electrophotographic imaging process comprising:

(a) applying an electrical charge to a surface of an organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

(i) a charge transport material having the formula



where Y and Y' are, each independently, a 9-fluorenylidene group and X is a conjugated linking group that allows the delocalization of pi electrons over at least Y and Y'; and

(ii) a charge generating compound;

(b) imagewise exposing the surface of the organophotoreceptor to radiation to dissipate charge in selected areas and thereby form a pattern of charged and uncharged areas on the surface;

(c) contacting the surface with a toner to create a toned image; and

5 (d) transferring the toned image to substrate.

21. An electrophotographic imaging process of claim 20 wherein the organophotoreceptor further comprises a second charge transport material.

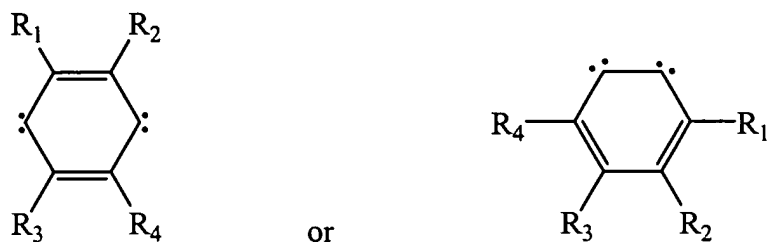
10 22. An electrophotographic imaging process according to claim 21 wherein the second charge transport material comprises a charge transport compound.

23. An electrophotographic imaging process according to claim 20 wherein X comprises a 1,2-ethanediylidene group, a 1,4-phenylenedimethylidyne group, a 2,4-cyclohexadienylidene group, a 2,5-cyclohexadienylidene group, a bicyclohexylidene-2,5,2',5'-tetraene group, a bicyclohexylidene-2,4,2',4'-tetraene group, or a combination thereof.

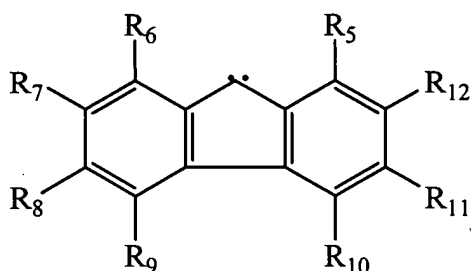
24. An electrophotographic imaging process according to claim 23 wherein X comprises a  $(C_6R_1R_2R_3R_4)_n$  group, where the  $C_6$  group is a cyclohexadienylidene group with substituents  $R_1R_2R_3R_4$ ; n is an integer between 1 and 20, inclusive; and  $R_1$ ,  $R_2$ ,  $R_3$ , and  $R_4$ , each independently, are a hydrogen, a halogen, an amino group, a nitro group, a cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

25

25. An electrophotographic imaging process according to claim 24 wherein the  $C_6R_1R_2R_3R_4$  group has one of the following formulae:

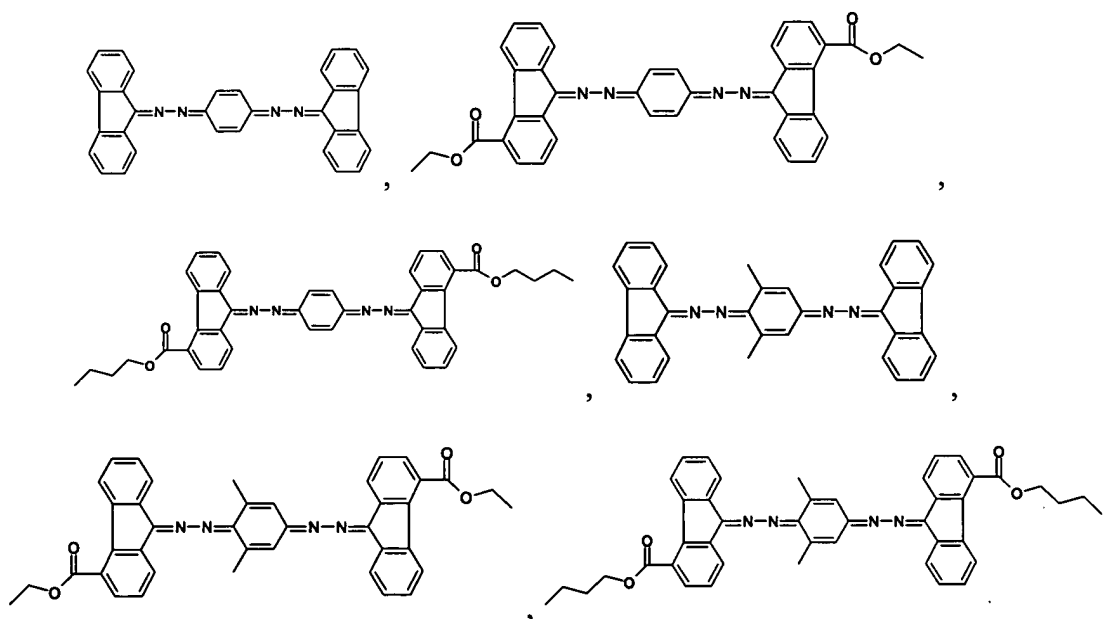


26. An electrophotographic imaging process according to claim 20 wherein Y and Y', each independently, have the following formula:

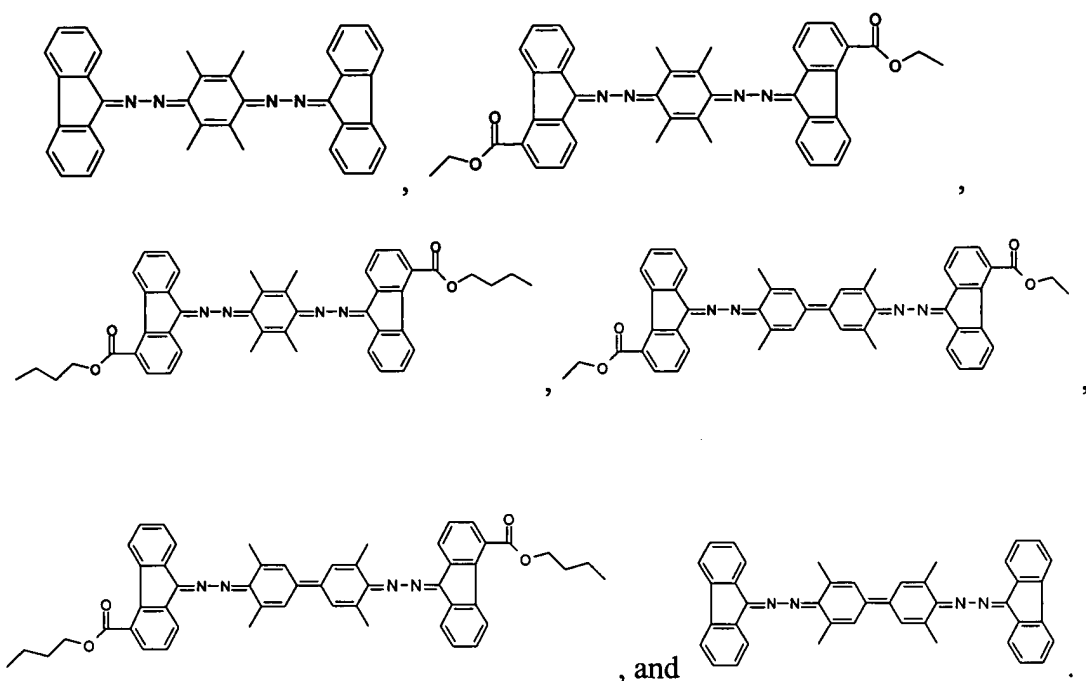


where R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, and R<sub>12</sub>, each independently, are a hydrogen, a halogen, a hydroxyl group, a thiol group, a carboxyl group, an amino group, a nitro group, a cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

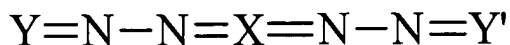
27. An electrophotographic imaging process of claim 20 wherein the charge transport material has the following formulae:







28. A charge transport material having the formula



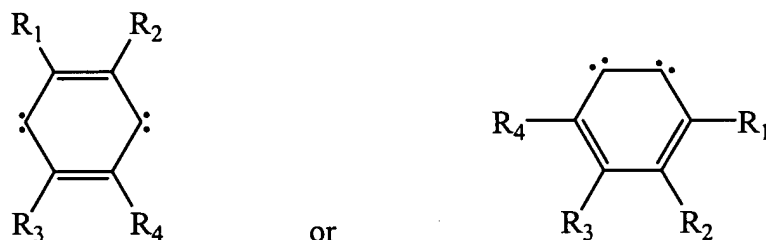
where Y and Y' are, each independently, a 9-fluorenylidene group and X is a conjugated linking group that allows the delocalization of pi electrons over at least Y and Y'.

29. A charge transport material of claim 28 wherein X comprises a 1,2-ethanediylidene group, a 1,4-phenylenedimethyldiylidene group, a 2,4-cyclohexadienyliidene group, a 2,5-cyclohexadienyliidene group, a bicyclohexylylidene-2,5,2',5'-tetraene group, a bicyclohexylylidene-2,4,2',4'-tetraene group, or a combination thereof.

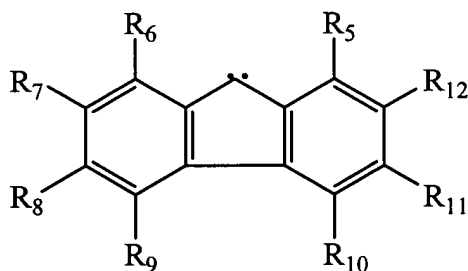
30. A charge transport material according to claim 29 wherein X comprises a  $(C_6R_1R_2R_3R_4)_n$  group, where the  $C_6$  group is a cyclohexadienyliidene group with substituents  $R_1R_2R_3R_4$ ; n is an integer between 1 and 20, inclusive; and  $R_1$ ,  $R_2$ ,  $R_3$ , and  $R_4$ , each independently, are a hydrogen, a halogen, an amino group, a nitro group, a

cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

31. A charge transport material according to claim 29 wherein the  $C_6R_1R_2R_3R_4$  group has one of the following formulae:



32. A charge transport material according to claim 28 wherein Y and Y', each independently, have the following formula:



where  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$ ,  $R_{11}$ , and  $R_{12}$ , each independently, are a hydrogen, a halogen, a hydroxyl group, a thiol group, a carboxyl group, an amino group, a nitro group, a cyano group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

33. A charge transport material of claim 28 wherein the charge transport material has the following formulae:

